```
=> d his

     (FILE 'HOME' ENTERED AT 11:41:45 ON 06 JAN 2003)

     FILE 'REGISTRY' ENTERED AT 11:42:03 ON 06 JAN 2003
L1            0 S MPR71292/CN
L2            0 S MPR 71292/CN
L3            0 S EHD2/CN
L4            1 S ETHIDIUM HOMODIMER 2/CN

     FILE 'CA' ENTERED AT 11:44:29 ON 06 JAN 2003
               S 180389-01-9/REG#

     FILE 'REGISTRY' ENTERED AT 11:45:00 ON 06 JAN 2003
L5            1 S 180389-01-9/RN

     FILE 'CA' ENTERED AT 11:45:00 ON 06 JAN 2003
L6           14 S L5
L7            0 S MPR71292
L8            0 S MPR 71292
L9            0 S 71292
L10       42783 S SPERM OR SPERMATOZOA OR SEMEN
L11       58803 S VIABILITY OR MOTILITY
L12       47707 S LIVE
L13      105729 S L11 OR L12
L14       23399 S CYTOMETRY OR FACS
L15          72 S L10 AND L13 AND L14
L16        5951 S L10 AND L11
L17     2251562 S CONCENTRATION
L18       26226 S FERTILITY
L19      429150 S RELATIONSHIP
L20          60 S L16 AND L17 AND L18 AND L19
L21       32127 S POLYVINYL ALCOHOL

     FILE 'REGISTRY' ENTERED AT 12:25:39 ON 06 JAN 2003
L22           0 S L21/CN
L23           0 S POLYVINYL ALCOHOL/CN
L24          27 S POLYVINYL ALCOHOL
L25      742461 S POLYMER
L26      124035 S COPOLYMER
L27      742461 S L25 OR L26
L28           9 S L24 NOT L27
L29        1127 S VINYL ALCOHOL
L30          42 S L29 NOT L27
L31        1127 S VINYL ALCOHOL
L32      742461 S POLYMER
L33        1085 S L31 AND L32
L34           0 FLIE CA
L35           1 S 9002-89-5

     FILE 'CA' ENTERED AT 12:31:40 ON 06 JAN 2003
               S 9002-89-5/REG#

     FILE 'REGISTRY' ENTERED AT 12:31:45 ON 06 JAN 2003
L36           1 S 9002-89-5/RN

     FILE 'CA' ENTERED AT 12:31:45 ON 06 JAN 2003
L37       47415 S L36
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L38          30 S L37 AND L10

     FILE 'BIOSIS' ENTERED AT 13:27:28 ON 06 JAN 2003
L39       61617 S SPERM OR SPERATOZOA OR SEMEN
L40       51112 S VIABILITY
L41      996255 S CORRELATION OR RELATIONSHIP OR CORRELATED OR CORRELATES
L42       57711 S FERTILITY OR NONRETURN
L43          85 S L42 AND L41 AND L40 AND L39

     FILE 'USPATFULL' ENTERED AT 13:56:20 ON 06 JAN 2003
L44         267 S L39 AND L40 AND L41 AND L42
L45      588875 S CONCENTRATION OR (CELL NUMBER)
L46         256 S L44 AND L45
L47      113011 S FLUORESCEN? OR (SYBR 14) OR (PROPIDIUM IODIDE) OR ETHIDIUM
L48         188 S L47 AND L46
L49        6687 S FACS OR (FLOW CYTOMER)
L50          52 S L48 AND L49

     FILE 'BIOSIS' ENTERED AT 14:45:30 ON 06 JAN 2003
L51        2890 S MULTIPAROUS
L52          41 S L39 AND L51
L53       71112 S SPERMATOZOA OR SEMEN OR SPERM
L54          48 S L53 AND L51
L55           7 S L54 NOT L52
L56        1882 S L53 AND L40
L57        6150 S LITTER SIZE
L58        8916 S L57 OR L51
L59          25 S L58 AND L56
L60        3612 S FERTILITY AND (LITTER SIZE) OR MULTIPAROUS
L61         210 S L60 AND L53
L62          17 S L40 AND L61

     FILE 'MEDLINE' ENTERED AT 15:06:19 ON 06 JAN 2003
L63          18 S L62

     FILE 'WPIDS' ENTERED AT 15:07:17 ON 06 JAN 2003
L64           0 S L62
L65          23 S L53 AND FERTILITY AND VIABILITY

=> log hold
COST IN U.S. DOLLARS                          SINCE FILE      TOTAL
                                                 ENTRY    SESSION
FULL ESTIMATED COST                              14.00     475.64

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)    SINCE FILE      TOTAL
                                                 ENTRY    SESSION
CA SUBSCRIBER PRICE                               0.00     -21.08

 SESSION WILL BE HELD FOR 60 MINUTES
STN INTERNATIONAL SESSION SUSPENDED AT 15:09:48 ON 06 JAN 2003
Connection closed by remote host
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=> d his

     (FILE 'HOME' ENTERED AT 11:41:45 ON 06 JAN 2003)

     FILE 'REGISTRY' ENTERED AT 11:42:03 ON 06 JAN 2003
L1             0 S MPR71292/CN
L2             0 S MPR 71292/CN
L3             0 S EHD2/CN
L4             1 S ETHIDIUM HOMODIMER 2/CN

     FILE 'CA' ENTERED AT 11:44:29 ON 06 JAN 2003
               S 180389-01-9/REG#

     FILE 'REGISTRY' ENTERED AT 11:45:00 ON 06 JAN 2003
L5             1 S 180389-01-9/RN

     FILE 'CA' ENTERED AT 11:45:00 ON 06 JAN 2003
L6            14 S L5
L7             0 S MPR71292
L8             0 S MPR 71292
L9             0 S 71292
L10        42783 S SPERM OR SPERMATOZOA OR SEMEN
L11        58803 S VIABILITY OR MOTILITY
L12        47707 S LIVE
L13       105729 S L11 OR L12
L14        23399 S CYTOMETRY OR FACS
L15           72 S L10 AND L13 AND L14
L16         5951 S L10 AND L11
L17      2251562 S CONCENTRATION
L18        26226 S FERTILITY
L19       429150 S RELATIONSHIP
L20           60 S L16 AND L17 AND L18 AND L19
L21        32127 S POLYVINYL ALCOHOL

     FILE 'REGISTRY' ENTERED AT 12:25:39 ON 06 JAN 2003
L22            0 S L21/CN
L23            0 S POLYVINYL ALCOHOL/CN
L24           27 S POLYVINYL ALCOHOL
L25       742461 S POLYMER
L26       124035 S COPOLYMER
L27       742461 S L25 OR L26
L28            9 S L24 NOT L27
L29         1127 S VINYL ALCOHOL
L30           42 S L29 NOT L27
L31         1127 S VINYL ALCOHOL
L32       742461 S POLYMER
L33         1085 S L31 AND L32
L34            0 FLIE CA
L35            1 S 9002-89-5

     FILE 'CA' ENTERED AT 12:31:40 ON 06 JAN 2003
               S 9002-89-5/REG#

     FILE 'REGISTRY' ENTERED AT 12:31:45 ON 06 JAN 2003
L36            1 S 9002-89-5/RN

     FILE 'CA' ENTERED AT 12:31:45 ON 06 JAN 2003
L37        47415 S L36
L38           30 S L37 AND L10
```

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     FILE 'BIOSIS' ENTERED AT 13:27:28 ON 06 JAN 2003
L39       61617 S SPERM OR SPERATOZOA OR SEMEN
L40       51112 S VIABILITY
L41      996255 S CORRELATION OR RELATIONSHIP OR CORRELATED OR CORRELATES
L42       57711 S FERTILITY OR NONRETURN
L43          85 S L42 AND L41 AND L40 AND L39

     FILE 'USPATFULL' ENTERED AT 13:56:20 ON 06 JAN 2003
L44         267 S L39 AND L40 AND L41 AND L42
L45      588875 S CONCENTRATION OR (CELL NUMBER)
L46         256 S L44 AND L45
L47      113011 S FLUORESCEN? OR (SYBR 14) OR (PROPIDIUM IODIDE) OR ETHIDIUM
L48         188 S L47 AND L46
L49        6687 S FACS OR (FLOW CYTOMER)
L50          52 S L48 AND L49

     FILE 'BIOSIS' ENTERED AT 14:45:30 ON 06 JAN 2003
L51        2890 S MULTIPAROUS
L52          41 S L39 AND L51
L53       71112 S SPERMATOZOA OR SEMEN OR SPERM
L54          48 S L53 AND L51
L55           7 S L54 NOT L52
L56        1882 S L53 AND L40
L57        6150 S LITTER SIZE
L58        8916 S L57 OR L51
L59          25 S L58 AND L56
L60        3612 S FERTILITY AND (LITTER SIZE) OR MULTIPAROUS
L61         210 S L60 AND L53
L62          17 S L40 AND L61

     FILE 'MEDLINE' ENTERED AT 15:06:19 ON 06 JAN 2003
L63          18 S L62

     FILE 'WPIDS' ENTERED AT 15:07:17 ON 06 JAN 2003
L64           0 S L62
L65          23 S L53 AND FERTILITY AND VIABILITY

     FILE 'USPATFULL, USPAT2' ENTERED AT 15:29:49 ON 06 JAN 2003
L66       15559 FILE USPATFULL
L67         173 FILE USPAT2
     TOTAL FOR ALL FILES
L68       15732 S SPERM OR SPERMATOZOA OR SEMEN
L69      402017 FILE USPATFULL
L70        4870 FILE USPAT2
     TOTAL FOR ALL FILES
L71      406887 S MICROPARTICLES OR PARTICLES
L72        5849 FILE USPATFULL
L73          67 FILE USPAT2
     TOTAL FOR ALL FILES
L74        5916 S L71 AND L68
L75        8609 FILE USPATFULL
L76         106 FILE USPAT2
     TOTAL FOR ALL FILES
L77        8715 S (FLOW CYTOMETER) OR FACS
L78        1323 FILE USPATFULL
L79          11 FILE USPAT2
     TOTAL FOR ALL FILES
L80        1334 S L77 AND L74
L81         244 FILE USPATFULL
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L82             2 FILE USPAT2
     TOTAL FOR ALL FILES
L83           246 S L68 (P) L71
L84            29 FILE USPATFULL
L85             1 FILE USPAT2
     TOTAL FOR ALL FILES
L86            30 S L77 AND L83

     FILE 'WPIDS' ENTERED AT 15:41:17 ON 06 JAN 2003
L87          3471 S SPERM OR SPERMATOZOA OR SEMEN
L88        254044 S MICROPARTICLES OR PARTICLES
L89            83 S L87 AND L88

=> log hold
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                    51.06     580.73

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
                                                       ENTRY    SESSION
CA SUBSCRIBER PRICE                                     0.00     -21.08

 SESSION WILL BE HELD FOR 60 MINUTES
STN INTERNATIONAL SESSION SUSPENDED AT 15:48:07 ON 06 JAN 2003
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=> d his

     (FILE 'HOME' ENTERED AT 11:41:45 ON 06 JAN 2003)

     FILE 'REGISTRY' ENTERED AT 11:42:03 ON 06 JAN 2003
L1             0 S MPR71292/CN
L2             0 S MPR 71292/CN
L3             0 S EHD2/CN
L4             1 S ETHIDIUM HOMODIMER 2/CN

     FILE 'CA' ENTERED AT 11:44:29 ON 06 JAN 2003
               S 180389-01-9/REG#

     FILE 'REGISTRY' ENTERED AT 11:45:00 ON 06 JAN 2003
L5             1 S 180389-01-9/RN

     FILE 'CA' ENTERED AT 11:45:00 ON 06 JAN 2003
L6            14 S L5
L7             0 S MPR71292
L8             0 S MPR 71292
L9             0 S 71292
L10        42783 S SPERM OR SPERMATOZOA OR SEMEN
L11        58803 S VIABILITY OR MOTILITY
L12        47707 S LIVE
L13       105729 S L11 OR L12
L14        23399 S CYTOMETRY OR FACS
L15           72 S L10 AND L13 AND L14
L16         5951 S L10 AND L11
L17      2251562 S CONCENTRATION
L18        26226 S FERTILITY
L19       429150 S RELATIONSHIP
L20           60 S L16 AND L17 AND L18 AND L19
L21        32127 S POLYVINYL ALCOHOL

     FILE 'REGISTRY' ENTERED AT 12:25:39 ON 06 JAN 2003
L22            0 S L21/CN
L23            0 S POLYVINYL ALCOHOL/CN
L24           27 S POLYVINYL ALCOHOL
L25       742461 S POLYMER
L26       124035 S COPOLYMER
L27       742461 S L25 OR L26
L28            9 S L24 NOT L27
L29         1127 S VINYL ALCOHOL
L30           42 S L29 NOT L27
L31         1127 S VINYL ALCOHOL
L32       742461 S POLYMER
L33         1085 S L31 AND L32
L34            0 FLIE CA
L35            1 S 9002-89-5

     FILE 'CA' ENTERED AT 12:31:40 ON 06 JAN 2003
               S 9002-89-5/REG#

     FILE 'REGISTRY' ENTERED AT 12:31:45 ON 06 JAN 2003
L36            1 S 9002-89-5/RN

     FILE 'CA' ENTERED AT 12:31:45 ON 06 JAN 2003
L37        47415 S L36
L38           30 S L37 AND L10
```

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     FILE 'BIOSIS' ENTERED AT 13:27:28 ON 06 JAN 2003
L39        61617 S SPERM OR SPERATOZOA OR SEMEN
L40        51112 S VIABILITY
L41       996255 S CORRELATION OR RELATIONSHIP OR CORRELATED OR CORRELATES
L42        57711 S FERTILITY OR NONRETURN
L43           85 S L42 AND L41 AND L40 AND L39

     FILE 'USPATFULL' ENTERED AT 13:56:20 ON 06 JAN 2003
L44          267 S L39 AND L40 AND L41 AND L42
L45       588875 S CONCENTRATION OR (CELL NUMBER)
L46          256 S L44 AND L45
L47       113011 S FLUORESCEN? OR (SYBR 14) OR (PROPIDIUM IODIDE) OR ETHIDIUM
L48          188 S L47 AND L46
L49         6687 S FACS OR (FLOW CYTOMER)
L50           52 S L48 AND L49

=> log hold
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     7.62     397.46

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
                                                       ENTRY    SESSION
CA SUBSCRIBER PRICE                                     0.00     -21.08

 SESSION WILL BE HELD FOR 60 MINUTES
STN INTERNATIONAL SESSION SUSPENDED AT 13:59:38 ON 06 JAN 2003
```

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=> d his

     (FILE 'HOME' ENTERED AT 11:41:45 ON 06 JAN 2003)

     FILE 'REGISTRY' ENTERED AT 11:42:03 ON 06 JAN 2003
L1             0 S MPR71292/CN
L2             0 S MPR 71292/CN
L3             0 S EHD2/CN
L4             1 S ETHIDIUM HOMODIMER 2/CN

     FILE 'CA' ENTERED AT 11:44:29 ON 06 JAN 2003
                S 180389-01-9/REG#

     FILE 'REGISTRY' ENTERED AT 11:45:00 ON 06 JAN 2003
L5             1 S 180389-01-9/RN

     FILE 'CA' ENTERED AT 11:45:00 ON 06 JAN 2003
L6            14 S L5
L7             0 S MPR71292
L8             0 S MPR 71292
L9             0 S 71292
L10        42783 S SPERM OR SPERMATOZOA OR SEMEN
L11        58803 S VIABILITY OR MOTILITY
L12        47707 S LIVE
L13       105729 S L11 OR L12
L14        23399 S CYTOMETRY OR FACS
L15           72 S L10 AND L13 AND L14
L16         5951 S L10 AND L11
L17      2251562 S CONCENTRATION
L18        26226 S FERTILITY
L19       429150 S RELATIONSHIP
L20           60 S L16 AND L17 AND L18 AND L19
L21        32127 S POLYVINYL ALCOHOL

     FILE 'REGISTRY' ENTERED AT 12:25:39 ON 06 JAN 2003
L22            0 S L21/CN
L23            0 S POLYVINYL ALCOHOL/CN
L24           27 S POLYVINYL ALCOHOL
L25       742461 S POLYMER
L26       124035 S COPOLYMER
L27       742461 S L25 OR L26
L28            9 S L24 NOT L27
L29         1127 S VINYL ALCOHOL
L30           42 S L29 NOT L27
L31         1127 S VINYL ALCOHOL
L32       742461 S POLYMER
L33         1085 S L31 AND L32
L34            0 FLIE CA
L35            1 S 9002-89-5

     FILE 'CA' ENTERED AT 12:31:40 ON 06 JAN 2003
                S 9002-89-5/REG#

     FILE 'REGISTRY' ENTERED AT 12:31:45 ON 06 JAN 2003
L36            1 S 9002-89-5/RN

     FILE 'CA' ENTERED AT 12:31:45 ON 06 JAN 2003
L37        47415 S L36
L38           30 S L37 AND L10
```

```
=> log hold
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                      ENTRY    SESSION
FULL ESTIMATED COST                                   29.64     292.72

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)          SINCE FILE      TOTAL
                                                      ENTRY    SESSION
CA SUBSCRIBER PRICE                                   -4.34     -21.08

 SESSION WILL BE HELD FOR 60 MINUTES
STN INTERNATIONAL SESSION SUSPENDED AT 12:36:23 ON 06 JAN 2003
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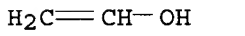
L33 ANSWER 1085 OF 1085 REGISTRY COPYRIGHT 2003 ACS
RN 9002-89-5 REGISTRY
CN **Ethenol, homopolymer (9CI)** (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN **Vinyl alcohol, polymers (8CI)**
OTHER NAMES:
CN Acroflex 1
CN Acroflex 2
CN AH 17
CN AH 22
CN AH 26
CN Aibon AU 7002FL
CN Airvol 103
CN Airvol 107
CN Airvol 107SF
CN Airvol 125
CN Airvol 125SF
CN Airvol 165
CN Airvol 165SF
CN Airvol 166
CN Airvol 21-205
CN Airvol 21-25
CN Airvol 24-203
CN Airvol 321LA
CN Airvol 325
CN Airvol 325SF
CN Airvol 350
CN Airvol 350SF
CN Airvol 425
CN Airvol 502
CN Airvol 53
CN Airvol 710
CN Airvol 803
CN Airvol V 205
CN Airvol WS 42
CN AL 6
CN **AL 6 (polymer)**
CN Alcotex 17F-H
CN Alcotex 72.5L
CN Alcotex 75L
CN Alcotex 99/10
CN Alvyl
CN AQ 2117
CN Aquafilm L 330
CN Aquareserve GP 02
CN Aquareserve GP 48
CN Aracet APV
CN Aracet APV 120-88
CN Aracet APV 50-92
CN Aracet APV 50/88
CN **Atactic poly(vinyl alcohol)**
CN AX 300SN
CN B 17
CN B 20F
CN Bansuta PX 25
CN BF 24
CN **C 10 (vinyl polymer)**
CN **C 20 (vinyl polymer)**
CN **K 16 (polymer)**

CN **M 1000 (vinyl polymer)**
CN **NP 25 (vinyl polymer)**
CN **P 610 (vinyl polymer)**
CN **Poly(vinyl alcohol)**
CN **PV 03 (vinyl alcohol polymer)**
CN **TTF (polymer)**
CN **Vinyl alcohol homopolymer**
CN **Vinyl alcohol polymer**
CN **Warcopolymer A 20**
ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for DISPLAY
DR 9014-14-6, 9050-53-7, 9066-05-1, 162261-31-6, 53241-16-0, 58740-50-4, 25038-51-1, 98002-48-3, 106442-33-5, 61584-38-1, 73298-53-0, 75923-48-7, 147827-36-9, 151439-02-0, 153569-70-1, 152987-51-4, 155421-52-6, 39320-29-1, 353276-42-3, 372077-13-9
MF (C2 H4 O)x
CI PMS, COM
PCT Polyvinyl
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PHARMASEARCH, PIRA, PLASPEC*, PROMT, RTECS*, TOXCENTER, TULSA, USAN, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

CM 1

CRN 557-75-5
CMF C2 H4 O



47368 REFERENCES IN FILE CA (1962 TO DATE)
3610 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
47408 REFERENCES IN FILE CAPLUS (1962 TO DATE)

=>

L38 ANSWER 14 OF 30 CA COPYRIGHT 2003 ACS
AN 121:4426 CA
TI In vitro fertilization of bovine oocytes in a chemically defined, protein-free medium varying the bicarbonate concentration
AU Tajik, Parviz; Wang, Wei Hua; Okuda, Kiyoshi; Niwa, Koji
CS Fac. Agric., Okayama Univ., Okayama, 700, Japan
SO Biology of Reproduction (1994), 50(6), 1231-7
CODEN: BIREBV; ISSN: 0006-3363
DT Journal
LA English
AB Bovine cumulus-enclosed oocytes were matured in culture, freed from cumulus cells, and inseminated with frozen-thawed **spermatozoa** in a chem. defined protein-free medium contg. 5 mM caffeine and 10 .mu.g/mL heparin. No penetration of oocytes was obsd. in the medium without polyvinylalc. (PVA); but when the medium was supplemented with 0.1-5 mg/mL PVA, penetration rates (9-16%) significantly increased. **Sperm** motility was also stimulated during incubation for 2 h in the presence of PVA. In the medium with 1 mg/mL PVA, a high penetration rate (24 of 62=39%) was obsd. at a **sperm** concn. of 10.times.106 cells/mL. When the bicarbonate concn. was changed in the fertilization medium contg. 1 mg/mL PVA and 10.times.106 **spermatozoa**/mL, a high penetration rate (47 of 67=70%) and a high proportion (44 of 47=94%) of oocytes in which male and female pronuclei had developed were obtained at 46 mM NaHCO3. However, the penetration rate (58-95%), the incidence of pronuclear formation (64-96%), and the proportion of polyspermy (9-21%) varied according to the animal (five different bulls). **Spermatozoa** obtained from two bulls started to penetrate oocytes 5 h after insemination in the presence of 46 mM NaHCO3. This is the first report indicating that induction of capacitation of bull **spermatozoa** and penetration of oocytes matured in culture are possible in a chem. defined, protein-free medium.

L38 ANSWER 13 OF 30 CA COPYRIGHT 2003 ACS
AN 123:140269 CA
TI Functional analysis using chlortetracycline fluorescence and in vitro fertilization of frozen-thawed ejaculated boar **spermatozoa** incubated in a protein-free chemically defined medium
AU Wang, W. H.; Abeydeera, L. R.; Fraser, L. R.; Niwa, K.
CS Fac. Agric., Okayama Univ., Okayama, 700, Japan
SO Journal of Reproduction and Fertility (1995), 104(2), 305-13
CODEN: JRPFA4; ISSN: 0022-4251
PB Journals of Reproduction and Fertility Ltd.
DT Journal
LA English
AB Cumulus-enclosed pig oocytes were matured in vitro, freed from cumulus cells, and inseminated with frozen-thawed ejaculated **spermatozoa** in a chem. defined protein-free medium contg. 37.0 mmol NaHCO3 L-1 and 5 mmol caffeine L-1. When the medium was supplemented with 1 mg polyvinylalc. (PVA) mL-1, more penetrated oocytes were obsd. 14 h after insemination with 7-12 .times. 106 cells mL-1 than with 4-5 .times. 106 cells mL-1 and the incidence of polyspermy reflected the **sperm** concn. used. Varying the NaHCO3 concn. but maintaining the **sperm** concn. at 8 .times. 106 cells mL-1 resulted in significantly more oocytes being penetrated in media contg. 45.83-50.25 than 37.0-41.42 mmol NaHCO3 L-1; there were no significant differences in the incidence of either male pronuclear formation or polyspermy. In medium contg. 45.83 mmol NaHCO3 L-1, the inclusion of PVA at 0-5 mg mL-1 had no effect on proportions of penetrated oocytes, male pronuclear formation or polyspermy. However, when **spermatozoa** from three different boars were evaluated, the penetration and male pronuclear formation rates were highly variable, unlike the incidence of polyspermy. Penetration of cumulus-free oocytes was first detected at 6 h. When **spermatozoa** were incubated for 6 h in the absence of oocytes, motility, but not vitality, decreased whether or not PVA was included in the medium. Chlortetracycline (CTC) fluorescence anal. of the capacitation state indicated a rapid decline in the proportion of live uncapacitated, acrosome-intact cells and a rapid rise in the proportion of live capacitated, acrosome-reacted cells during the first hour. Smaller changes in the distribution of CTC patterns occurred during the later stages, suggesting that the rapidly responding cells were non-fertilizing, owing to damage by freeze-thawing, and that the fertilizing **spermatozoa** were drawn from the remaining pool of cells which underwent capacitation more slowly. This is the first report indicating that capacitation of frozen-thawed ejaculated board **spermatozoa** and penetration of oocytes matured in culture are possible in a chem. defined, protein-free medium.

EH 72

L6 ANSWER 14 OF 14 CA COPYRIGHT 2003 ACS
AN 125:162751 CA
TI Fluorescent viability assay using cyclic-substituted unsymmetrical cyanine dyes
IN Millard, Paul J.; Roth, Bruce L.; Yue, Stephen T.; Haugland, Richard P.
PA Molecular Probes, Inc., USA
SO U.S., 26 pp., Cont. of U. S. 5,436,134.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 8

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5534416	A	19960709	US 1993-148847	19931108
	US 5436134	A	19950725	US 1993-90890	19930712
	US 5545535	A	19960813	US 1993-146328	19931101
	CA 2133765	AA	19941027	CA 1994-2133765	19940413
	EP 675924	A1	19951011	EP 1994-914173	19940413
	EP 675924	B1	20011212		
	R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL				
	AT 210703	E	20011215	AT 1994-914173	19940413
	ES 2166777	T3	20020501	ES 1994-914173	19940413
	JP 07196930	A2	19950801	JP 1994-159824	19940712
PRAI	US 1993-47683	B2	19930413		
	US 1993-90890	A1	19930712		
	US 1993-146328	A2	19931101		
	US 1993-148847	A	19931108		
	WO 1994-US4127	W	19940413		

OS MARPAT 125:162751
AB The invention relates to a method of analyzing the viability of a sample of cells using an aq. soln. comprising two fluorescent dyes. Dye I has the formula I where R2 is C1-6 alkyl; Z- is a biol. compatible counterion;
X is O, S, Se, or NR15, where R15 is H or C1-6 alkyl; or CR16R17, where R16 and R17, which may be the same or different, are independently H or C1-6 alkyl, or the carbons of R16 and R17 taken in combination complete a 5- or 6-membered satd. ring; and the benzazolium is optionally further substituted; n = 0, 1, or 2; Y is CR3:CR4; p and m = 0 or 1, such that p + m = 1; R5 is a C1-6 alkyl, C1-6 alkenyl, C1-6 polyalkenyl, C1-6 alkynyl, or C1-6 polyalkynyl group; or R5 is an OMEGA; R3, R4, R6 and R7, which may be the same or different, are independently H; or a C1-6 alkyl, C1-6 alkenyl, C1-6 polyalkenyl, C1-6 alkynyl or C1-6 polyalkynyl group; or halogen; or OR8, SR8, (NR8R9), where R8 and R9, which may be the same or different, are independently H; or alkyl groups having 1-6 carbons; or 1-2 substituted or unsubstituted alicyclic, heteroalicyclic, arom., or heteroarom. rings, contg. 1-4 heteroatoms, wherein the heteroatoms are O, N, or S. R8 and R9 taken in combination are (CH2)2L(CH2)2 where L = O, NR10, CH2 or a single bond where R10 is H or an alkyl group having 1-6 carbons; or OSO2R19 where R19 is C1-6 alkyl, or C1-6 perfluoroalkyl, or aryl; or an OMEGA; or R6 and R7, taken in combination are (CH2)v where v = 3 or 4, or R6 and R7 form a fused arom. ring that is optionally further substituted; such that at least one of R3, R4, R5, R6 and R7, or a substituent on the arom. ring formed by R6 and R7, is an OMEGA; where OMEGA is a cyclic substituent that is attached by a single bond.

Fluorescent Dye II selectively stains either viable or nonviable cells with a detectable fluorescent response that is different from the fluorescent response of Dye I. The stained cells are illuminated at a suitable absorption wavelength, and the fluorescent response is detected to distinguish viable and nonviable cells based on the fluorescent response.

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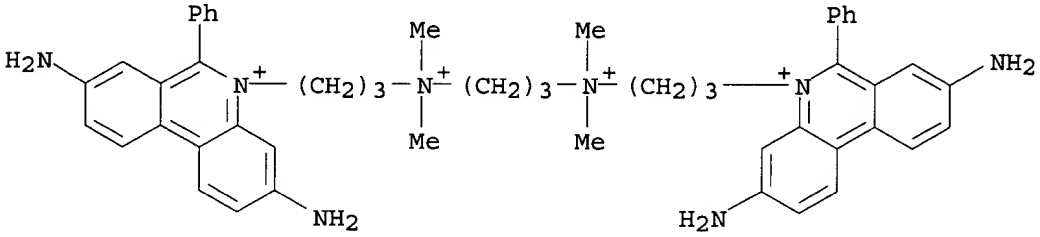
L6 ANSWER 14 OF 14 CA COPYRIGHT 2003 ACS

IT 596-09-8, Fluorescein diacetate 1239-45-8, Ethidium bromide 3348-03-6 3546-21-2, Ethidium 24147-36-2, Thiazole orange 25535-16-4, Propidium iodide 36015-30-2, Propidium 38483-26-0 61926-22-5, Ethidium homodimer 63783-82-4, Ethidium monoazide 105284-17-1 124412-00-6 127770-45-0 139626-15-6, Tetramethylrhodamine ethyl ester 163831-68-3 169454-17-5 180388-99-2 180389-00-8 **180389-01-9**

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(fluorescent cell viability assay using cyclic-substituted unsym. cyanine dyes)

> d

L4 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS
RN 180389-01-9 REGISTRY
CN Phenanthridinium, 5,5'-[1,3-propanediylbis[(dimethyliminio)-3,1-propanediyl]]bis[3,8-diamino-6-phenyl-, tetraiodide (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **Ethidium homodimer 2**
MF C51 H60 N8 . 4 I
SR CA
LC STN Files: CA, CAPLUS, CHEMCATS, TOXCENTER, USPAT2, USPATFULL



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14 REFERENCES IN FILE CA (1962 TO DATE)
14 REFERENCES IN FILE CAPLUS (1962 TO DATE)

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L6 ANSWER 6 OF 14 CA COPYRIGHT 2003 ACS
AN 135:207869 CA
TI Method and reagent for counting sperm by flow cytometry
IN Matsumoto, Teruya; Okada, Hiroshi; Hamaguchi, Yukio
PA Sysmex Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001242168	A2	20010907	JP 2000-52953	20000229
	US 2001024806	A1	20010927	US 2001-790368	20010222
	US 6472168	B2	20021029		
PRAI	JP 2000-52953	A	20000229		

OS MARPAT 135:207869
AB A method and a reagent are provided for accurately counting sperm even in a seminal fluid sample contg. impurities. A seminal fluid sample is treated with an aq. soln. contg. a cationic surfactant (e.g., quaternary ammonium salt, pyridinium salt), and stained with a nucleic acid-staining dye (e.g., ethidium bromide, propidium iodide, N-methyl-4-(1-pyrene)vinylpropidium iodide, TOTO-1, TOTO-3, YOYO-1, YOYO-3, BOBO-1, BOBO-3, ethidium homodimer-1 (Ethd-1), ethidium homodimer-2 (Ethd-2), POPO-1, POPO-3, BO-PRO- 1, YO-PRO-1, TO-PRO-1). Then, the sperm in the sample is counted by flow cytometry.

L15 ANSWER 58 OF 72 CA COPYRIGHT 2003 ACS
AN 120:157733 CA
TI Flow cytometric analysis for reproductive biology
AU Spano, Marcello; Evenson, Donald P.
CS Div. Mol. Bio. Biophys. Bioelectron., CRE Casaccia, Rome, 00060, Italy
SO Biology of the Cell (1993), 78(1-2), 53-62
CODEN: BCELDF; ISSN: 0248-4900
DT Journal; General Review
LA English
AB A review with 127 refs. Flow cytometric studies of spermatogenesis have been advanced by the need for: (i) rapid, sensitive, objective and multiparameter measurements of reproductive effects due to environmental, occupational, and therapeutic exposure to toxicants; and (ii) assessment of fertility potential of human and animal **sperm**. As a consequence, various flow cytometric techniques are already available to identify germ cell subpopulations undergoing both proliferative and maturative processes in normal and perturbed conditions. Significant improvements have been introduced to investigate the spermatogenic complex differentiation pathway and the apparent uniformity of mature **sperm**. Flow **cytometry** (FCM) has been applied to the measurement of both testis and **sperm** cells in a variety of species, including man. End points considered in toxicol. studies are: altered testicular germ cell ratios, DNA and RNA content, increase of the coeff. of variation, induction of diploid elongated spermatids and diploid **sperm**, altered nuclear morphol., **sperm** cell **viability**, mitochondrial function and **sperm** chromatin structure. Precise DNA content measurements allow accurate anal. to det. the proportion of X- and Y-chromosome bearing **sperm** and sorting of these subpopulations for gender preselection. FCM technol. has reached a maturation level that allows its inclusion in the list of available and routine methods for reproductive studies in human and animal populations.

L43 ANSWER 78 OF 85 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1985:392373 BIOSIS
DN BA80:62365
TI FLUOROMETRY OF POULTRY **SEMEN** ITS APPLICATION IN THE DETERMINATION OF **VIABILITY** ENZYME LEAKAGE AND **FERTILITY**

AU BILGILI S F; RENDEN J A; SEXTON K J
CS POULTRY SCI. DEP., ALA. AGRIC. EXP. STN., AUBURN UNIV., ALA. 36849.
SO POULT SCI, (1985) 64 (6), 1227-1230.
CODEN: POSCAL. ISSN: 0032-5791.
FS BA; OLD
LA English
AB The accuracy of fluorometry for estimating percentages of dead [Single Comb White Leghorn] chicken spermatozoa was investigated by comparing this technique with the eosin-nigrosin differential staining procedure and with glutamic oxaloacetic transaminase (GOT) concentration in seminal plasma. The **relationship** between percent dead **sperm** measured by fluorometry and **fertility** was also examined. The **correlation** coefficient of percentage of dead spermatozoa determined by fluorometry with eosin-nigrosin counts was highly significant ($r = 0.99$; $P < 0.001$). Similarly, the **correlation** coefficient of GOT activity with percentage of dead spermatozoa was 0.99 ($P < 0.001$). Percent **fertility**, fertile egg production and duration of **fertility** were negatively **correlated** with percent dead spermatozoa, -0.55, -0.51 and -0.44 ($P < 0.001$), respectively.

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L43 ANSWER 73 OF 85 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1987:416963 BIOSIS
DN BA84:83625
TI USE OF LINEAR **SEMEN** QUALITY SCORE FOR CLASSIFICATION AND DECISION MAKING IN EVALUATION OF INDIVIDUAL EJACULATES OF HOLSTEIN BULLS.
AU CHANDLER J E; ADKINSON R W; SMITH J W; SAXTON A M
CS DEP. DAIRY SCI., LOUISIANA AGRIC. EXP. STN., LA. STATE UNIV. AGRIC. CENT.,
BATON ROUGE 70893.
SO J DAIRY SCI, (1987) 70 (5), 1036-1044.
CODEN: JDSCAE. ISSN: 0022-0302.
FS BA; OLD
LA English
AB Four hundred seven ejaculates from 15 Holstein bulls collected from December 1984 to June 1985 were evaluated postthaw for **viability** characteristics (percent progressive motility at 0 h and after 3 h at 37.degree.C incubation, percent intact acrosomal membrane after 3 h at 37.degree.C incubation) and abnormal morphological characteristics [percent head (primary), midpiece, and tail (secondary) abnormalities]. Weighting coefficients for combining **viability** and abnormality characteristics were generated from between-bull and within-bull variance and covariance matrices. Two hundred ninety-eight additional ejaculates collected from July 1985 to February 1986 were added. Linear quality scores for 705 ejaculates (24 bulls) were the sum of the product of each quality characteristic and weighting coefficients. Univariate analysis yielded significant bull effects for **viability** and abnormality characteristics and linear quality score. Significant **correlations** existed between all seminal quality characteristics except primary and secondary abnormalities. A t test with preassigned critical value was used to evaluate each ejaculate to determine rejection from the population. Percent of ejaculates rejected was lower when linear quality score was used than when five independent tests were used. Use of linear quality score to critique **semen** based on each ejaculate's innate quality could compensate for the loss of bull **fertility** estimates from declining number of technical-based AI programs.

L43 ANSWER 41 OF 85 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1998:41735 BIOSIS
DN PREV199800041735
TI Effect of cryopreservation on bovine **sperm viability** as determinated by dual DNA staining.
AU Garner, D. L. (1); Thomas, C. A.; Allen, C. H.; Senger, P. L.; Sasser, R. G.
CS (1) Sch. Vet. Med., Univ. Nevada, Reno, NV 89557 USA
SO Reproduction in Domestic Animals, (Dec., 1997) Vol. 32, No. 6, pp. 279-283.
ISSN: 0936-6768.
DT Article
LA English
SL English; German
AB The proportions of living and damaged spermatozoa in samples of 24 h-stored and cryopreserved spermatozoa from six bulls were determined using dual fluorescent staining of DNA and flow cytometry. In the 24 h-stored samples, the mean proportion of living spermatozoa was 60.3 +- 6.3%, while the mean proportion after cryopreservation was 40.3 +- 4.0%. Significant differences ($p < 0.01$) were found among these bulls in the proportion of living spermatozoa as determined by staining the **sperm** nucleic acids before and after cryopreservation using the combination of SYBR-14 and propidium iodide (PI). In addition, the proportion of spermatozoa staining with SYBR-14/PI were determined in samples from five bulls where **fertility** had been determined. The **fertility** levels of **semen** from these bulls as determined by pregnancy-specific protein B, ranking from high to low, were 68.0, 64.7, 63.6, 60.5 and 57.1%, whereas the mean proportion of living spermatozoa were 32.5, 28.2, 26.8, 14.0 and 34.4%, respectively. The proportions of spermatozoa stained with SYBR-14 were not **correlated** with the **fertility** of the cryopreserved samples from these five bulls. These results demonstrated that dual DNA staining of spermatozoa can be used as an indicator of the ability of a bull's spermatozoa to successfully undergo cryopreservation, but that the singular as

3 ANSWER 29 OF 85 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 2000:322886 BIOSIS
DN PREV200000322886
TI Use of a **sperm** analyzer for evaluating broiler breeder males. 2. Selection of young broiler breeder roosters for the **sperm** quality index increases fertile egg production.
AU Parker, H. M.; Yeatman, J. B.; Schultz, C. D.; Zumwalt, C. D.; McDaniel, C. D. (1)
CS (1) Poultry Science Department, Mississippi State University, Mississippi State, MS, 39762 USA
SO Poultry Science, (May, 2000) Vol. 79, No. 5, pp. 771-777. print. ISSN: 0032-5791.
DT Article
LA English
SL English
AB Previous research has shown that the **sperm** quality index (SQI) of rooster **semen** is indicative of overall **semen** quality. The objectives of the present experiments were to determine the **correlation** of the SQI with **semen** characteristics and **fertility** and to determine if selection of young males for the SQI would improve **fertility**. In Experiment 1 **semen** was collected from 35 Peterson males and was analyzed individually for **sperm** concentration and **viability**. To determine **fertility**, 100 muL of diluted **semen** was inseminated into 10 hens for each rooster. Positive **correlations** of the SQI with total and live **sperm** concentrations as well as **fertility** were found. A negative **correlation** of the SQI with the percentage of dead **sperm** was observed. In Experiment 2, four **semen** samples were collected at 2- to 3-d intervals from each of 142, 27-wk-old Peterson roosters to determine their SQI. Males were then allocated to six treatment groups based on their average SQI readings as follows: 0 to 150, 151 to 200, 201 to 250, 251 to 300, 301 to 350, and >350. For each SQI group, **semen** was collected weekly for 8 wk, pooled, and used at a rate of 50 muL/hen to inseminate 40 hens. The percentage of fertilized eggs increased linearly across the SQI groups, from a minimum of 65% for the 0 to 150 SQI group to a maximum of 98% for the >350 SQI group. The SQI groups of 301 to 350 and >350 produced the slowest decline in **fertility** over days postinsemination. Therefore, selection of males for the SQI at an early age appears to improve flock **fertility**.

L43 ANSWER 60 OF 85 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1993:294150 BIOSIS
DN PREV199396012375
TI Interrelationships among fluorometric analyses of spermatozoal function, classical **semen** quality parameters and the **fertility** of frozen-thawed bovine spermatozoa.
AU Ericsson, S. A. (1); Garner, D. L.; Thomas, C. A.; Downing, T. W.; Marshall, C. E.
CS (1) Box C-110-, Range/Anim. Sci., Sul Ross State Univ., Alpine TX 79832
SO Theriogenology, (1993) Vol. 39, No. 5, pp. 1009-1024.
ISSN: 0093-691X.
DT Article
LA English
AB Cryopreserved spermatozoa from 8 bulls were used to examine the interrelationships among flow cytometric spermatozoal quality assessments and classical **semen** quality parameters and **nonreturn** rate estimates of **fertility**. The integrity of the **sperm** cell membrane and the functional capacity of the mitochondria were quantified by flow cytometry after concurrent staining with carboxydimethylfluorescein diacetate (CDMFDA), propidium iodide (PI), and rhodamine 123 (R123). For each sample a total of 10,000 stained spermatozoa were simultaneously quantified for the intensity of their green and red fluorescence. Three straws from each bull were each examined initially and following incubation at 37 degree C for 3 hours to assess the rate of senescence. The proportion of spermatozoa retaining membrane integrity and having functional mitochondria, as determined by CDMFDA and R123 staining, were compared with classical **semen** quality assessments (**sperm** motility, acrosomal status, cellular and head morphology, presence of vacuoles/craters and cytoplasmic droplets) and with **fertility** (**nonreturn** to estrus rates). For individual ejaculates **nonreturn** rates, the range was from 61.8 to 78.8%, whereas the cumulative rates of several ejaculates for each bull ranged from 71.3 to 83.5%. The proportion of spermatozoa with functional membranes and mitochondria were positively **correlated** with the percentage of spermatozoa with normal morphology ($r = 0.82$; $P = 0.01$) and motility after 4 hours of incubation ($r = 0.78$; $P = 0.02$), but not with the estimates of **fertility**. The actual number of spermatozoa per straw staining with CDMFDA and R123 after 4 hours of incubation at 37 degree C was **correlated** with the percentage of spermatozoa with normal morphology ($r = 0.73$; $P = 0.04$). Multiple regression equations indicated that combinations of **semen** quality measurements could be useful in estimating fertilizing potential.

L43 ANSWER 72 OF 85 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1988:203934 BIOSIS
DN BA85:105280
TI FLUOROMETRY OF POULTRY **SEMEN** INFLUENCE OF DILUTION AND STORAGE ON CHICKEN SPERMATOZOAL **VIABILITY** AND **FERTILITY**.
AU BILGILI S F; SEXTON K J; RENDEN J A
CS POULT. SCI. DEP., ALA. AGRIC. EXP. STN., AUBURN UNIV., ALA. 36849.
SO POULT SCI, (1987) 66 (12), 2032-2035.
CODEN: POSCAL. ISSN: 0032-5791.
FS BA; OLD
LA English
AB Two experiments were conducted to measure the effects of **semen** dilution and storage time (0, 1, 2, 3, 4, 24, and 48 h) at 22 C on spermatozoal **viability** (i.e., membrane permeability to ethidium bromide) and to determine the **relationship** between concentration of viable spermatozoa inseminated (25, 50, 100, and 200 .times. 106) and **fertility**. In Experiment 1, percentages of dead spermatozoa remained relatively constant during the 4-h postcollection period but increased significantly ($P < .05$) at 24 and 48 h. **Sperm viability** after 48 h was significantly higher in diluted **semen** than in undiluted **semen**. Percent (PF) and duration of **fertility** (DF) from undiluted **semen** significantly declined during the 4-h postcollection period compared with **fertility** of diluted **semen**. In Experiment 2, both PF and DF improved as the concentration of viable spermatozoa increased. **Fertility** was not significantly improved by inseminating more than 100 .times. 106 viable spermatozoa. The fertilizing capacity of chicken spermatozoa from undiluted **semen** was affected during storage before membrane permeability to ethidium bromide was altered.

L20 ANSWER 18 OF 60 CA COPYRIGHT 2003 ACS
AN 133:333436 CA
TI Seminal quality correlates with mitochondrial functionality
AU Ruiz-Pesini, E.; Lapena, A. C.; Diez, C.; Alvarez, E.; Enriquez, J. A.; Lopez-Perez, M. J.
CS Departamento de Bioquimica, Biologia Molecular y Celular, Universidad de Zaragoza, Zaragoza, 50013, Spain
SO Clinica Chimica Acta (2000), 300(1-2), 97-105
CODEN: CCATAR; ISSN: 0009-8981
PB Elsevier Science Ireland Ltd.
DT Journal
LA English
AB Oligozoospermia is an important manifestation of male subfertility and very little attention has been paid to study a possible **relationship** between the total no. of ejaculated **spermatozoa** and mitochondrial functionality. In this work we report a direct correlation between spectrophotometrically measured mitochondrial enzyme activities (citrate synthase and respiratory complex I, II, I+III, II+III and IV) and seminogram parameters (**sperm motility**, vitality and cell **concn**.). In addn., total ejaculated **spermatozoa** correlate much better with the nuclear-encoded citrate synthase and complex II than with the mitochondrial-encoded complex I, III and IV activities. Furthermore, total no. of **spermatozoa** has a significant but neg. correlation with the ratios of complex I, complex III and complex IV to complex II (and citrate synthase). These ratios are significantly higher in aged subjects emphasizing the physiol. relevance of this observation. These results suggest that the simultaneous increase of the no. of ejaculated **spermatozoa** and the mitochondrial enrichment of citrate synthase and complex II are both parallel responses to the same regulatory events.
RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 13 OF 72 CA COPYRIGHT 2003 ACS
AN 134:190219 CA
TI Fluorescent probes and flow **cytometry** to assess rat **sperm** integrity and mitochondrial function
AU Gravance, Curtis G.; Garner, Duane L.; Miller, Marion G.; Berger, Trish
CS Department of Environmental Toxicology, University of California, Davis, CA, 95616, USA
SO Reproductive Toxicology (2001), 15(1), 5-10
CODEN: REPTED; ISSN: 0890-6238
PB Elsevier Science Inc.
DT Journal
LA English
AB Fluorescent assessment of cellular integrity and mitochondrial function by
flow **cytometry** can provide a rapid and precise means of detg. the functional status of large nos. of **spermatozoa**. In the present study, rat **sperm viability** was assessed with SYBR-14 and PI and **sperm** mitochondria were differentially labeled with JC-1. **Sperm** samples of variable **viability** were prepd. using varying proportions of fresh and frozen **spermatozoa**. SYBR-14 stained **sperm** correlated well with expected **sperm viability** (r = 0.98). Motile **sperm** stained with JC-1 appeared orange in the midpiece indicating a high mitochondrial membrane potential whereas immotile **sperm** with a low membrane potential stained green. The percentage of **spermatozoa** staining orange was highly correlated (r = 0.99) with expected **sperm viability**. Flow **cytometry** using specific fluorescent probes is a useful technique for detecting changes in rat **sperm** plasma membrane integrity and mitochondrial function in large nos. of **spermatozoa**.

L20 ANSWER 22 OF 60 CA COPYRIGHT 2003 ACS
AN 133:28127 CA
TI Assessment of **sperm** characteristics post-thaw and response to calcium ionophore in relation to **fertility** in Swedish dairy AI bulls
AU Januskauskas, A.; Johannisson, A.; Soderquist, L.; Rodriguez-Martinez, H.
CS Department of Obstetrics and Gynaecology, Faculty of Veterinary Medicine, Centre for Reproductive Biology, Swedish University of Agricultural Sciences (SLU), Uppsala, SE-750 07, Swed.
SO Theriogenology (2000), 53(4), 859-875
CODEN: THGNBO; ISSN: 0093-691X
PB Elsevier Science Inc.
DT Journal
LA English
AB The present study examd. the **relationship** between bull **sperm** characteristics post-thawing, after swim-up, and after challenge to calcium ionophore in relation to **fertility** (56-d nonreturn rates) after artificial insemination (AI). **Spermatozoa** from 25 **semen** batches derived from 15 Swedish Red and White AI bulls were evaluated with regard to post-thaw **motility**, membrane integrity, and migration through a swim-up procedure. The swim-up sepd. **spermatozoa** were assessed in terms of **sperm concn.**, **viability** and capacitation status as well as their response to exogenous calcium ionophore (A23187). Acrosome reactions were evaluated by fluorescence microscopy and flow cytometry. **Sperm motility** and **viability** post-thawing were significantly correlated with **fertility**. For the swim-up sepd. **semen**, significant correlations to nonreturn rates were found for **concn.**, **viability**, no. of viable **spermatozoa** and **sperm** capacitation status (Pattern F and Pattern B). The only parameter significantly correlated to **fertility** after the ionophore challenge was the percentage of acrosome-reacted **spermatozoa** with remaining equatorial fluorescence, as assessed by fluorescence microscopy but not by flow cytometry. The regression anal. showed that combining the results of **sperm** membrane integrity assessment post-thawing with those of capacitation status after swim-up provided the best prediction of **fertility**. The accuracy of prediction did not improve when these parameters were combined with the percentage of **spermatozoa** in which the acrosome reaction was induced by ionophore challenge.
R